Patent claims

1. An interface for reducing mechanical vibrations, which has a base connection element (10), a load connection element (28) and at least one support element (14; 180, 210), characterized

a) in that at least a first energy converter system (16, 18; 100; 130; 160, 162, 190, 192; 230) extends between at least one engagement point (20, 22; 102; 132; 164, 166, 194, 196; 232) located on the base connection element (10) and at least one engagement point (24, 26; 104; 134; 168, 170, 198, 200) located on the load connection element (28);

b) in that at least one second energy converter system (30, 32; 106; 136; 172, 174, 202, 204) extends between at least one engagement point (34, 36; 110; 140; 176, 178, 206, 208) located on the support element (14; 180, 210) and at least one engagement point (38, 40; 108; 138; 182, 184, 212, 214) located on the load connection element (28);

c) in that the base connection element (10) is connected to the at least one support element (14; 180, 210) by means of at least one pretensioning device (12; 216, 218) in such a way that the pretensioning device can exert a preload on the first energy converter system (16, 18; 100; 130; 160, 162, 190, 192; 230) and on the second energy converter system (30, 32; 106; 136; 172, 174, 202, 204); and

d) in that the load connection element (28) has a part located in an intermediate space between the base connection element (10) and the support element (14; 180, 210), and a part located outside the intermediate space between the base connection element (10) and the support element (14; 180, 210).

2. The interface as claimed in the preceding claim, characterized in that the energy converter systems (16, 18, 30, 32; 100, 106; 130, 136; 160, 162, 190, 192, 172, 174, 202, 204; 230, 238, 242) have at least one of the following elements:

- a piezoactuator,
- a shape memory alloy actuator,
- an electrorheological or magnetorheological fluid actuator or fluid damper, or
- an electrostrictive or magnetostrictive actuator.

3. The interface as claimed in one of the preceding claims, characterized in that the base connection element (10) and the load connection element (28) have standardized connection geometries.

4. The interface as claimed in one of the preceding claims, characterized in that the pretensioning device (12) has a pipe which surrounds the actuator systems (16, 18, 30, 32; 100, 106; 130, 136).

5. The interface as claimed in one of the preceding claims, characterized in that at least one sensor system (60) for determining travel and/or velocity and/or acceleration and/or force is connected to the load connection element (28).

6. The interface as claimed in one of the preceding claims, characterized in that at least one energy converter system (16, 18, 30, 32; 100, 106; 130, 136; 160, 162, 172, 174, 190, 192, 202, 204; 230, 236, 242) is embodied as an actuator system, and

in that at least one actuator system or a part of at least one actuator system can simultaneously be used as an energy converter which can convert mechanical energy into electrical energy.

7. An arrangement for reducing mechanical vibrations, characterized by

- an interface as claimed in one of the preceding claims,
- at least one system which acts as a movement sensor and/or acceleration sensor and/or velocity sensor and/or force sensor, and
- an electronic circuit which generates, from a signal of the system which acts as a movement sensor and/or acceleration sensor and/or velocity sensor and/or force sensor, a target function for actuating the energy converter systems of the interface.

8. An arrangement for reducing mechanical vibrations, characterized by

- an interface as claimed in claim 6, and
- an electronic circuit for passive or semiactive vibration reduction.

9. An arrangement for reducing mechanical vibrations, characterized in that a plurality of interfaces as claimed in one of the preceding claims are connected in series in cascades in such a way that in each case the base connection element (10) of the following interface is connected to the load connection element (28) of the preceding interface.